

**COLLAPSIBLE ENCLOSURE WITH INTERCHANGEABLE
AND REVERSIBLE COVERING ELEMENTS**

RELATION TO PRIOR PATENT APPLICATION

This application claims the benefit of Provisional Application Serial No. 60/251,545 filed December 7, 2000.

FIELD OF THE INVENTION

The invention pertains to portable and collapsible enclosures, such as tents, and more particularly, to such enclosures bearing camouflage or background-matching patterns.

BACKGROUND OF THE INVENTION

Portable enclosures, such as tents, have been used as blinds and shelters since the beginning of recorded time. The structure and appearance of such enclosures is as varied as human culture.

More recently, easily portable, lightweight, durable and affordable enclosures have become a desirable accessory for many outdoor recreational activities, including camping and hunting. The widespread availability of modern lightweight structures and fabrics has resulted in the proliferation of literally hundreds of new designs for portable enclosures. Among the many popular current styles for tents and hunting blinds are the so-called "collapsible" structures which utilize a spring-like framework which can be easily collapsed and folded for transportation and storage. Such popular designs are typified in, for example, U.S. Patent No. 3,675,667 issued to Miller.

It is also well known to apply camouflage or background-matching patterns or colors to portable enclosures. It is desirable, particularly by hunters, that a tent or hunting blind be as inconspicuous as possible in its environment, and the development of realistic camouflage patterns for such enclosures (as well as other articles) has resulted in the widespread availability of enclosures which are almost invisible in specific backgrounds. For example, such enclosures may be provided with a typical woodlands camouflage pattern, in which the enclosure's fabric bears a depiction of typical mid-summer forest greenery, including the usual mix of deciduous and coniferous foliage, underbrush and grasses which might be found in a Midwestern woodland in summer. A type of camouflage popular among waterfowl hunters would feature the typical foliage and associated scenery of a fall wetlands area, including tall reeds, cattails, and related types of growth commonly found near water, appropriately shaded for autumn waterfowl hunting. Similarly, for the winter hunting season, camouflage materials are available which feature those mixtures of white and brown hues which would be commonly found in a snow-covered climate during winter. In certain hunting environments, it is desirable to have a bright, high contrast color, such as "Hunter's Orange" to make the enclosure more (instead of less) conspicuous in relationship to its background.

By producing these types of enclosures in readily collapsible styles, the hunter or outdoorsman has available a wide selection of enclosures containing desirable camouflage backgrounds for any geographic environment or season. The major drawback of this range of choices, however, is the necessity for the outdoorsman to acquire different enclosures for different geographic areas and different seasons. The hunter, for example, who wishes to

participate in both a fall waterfowl hunting season and a winter small animal hunting season might, of necessity, own two different collapsible camouflage enclosures, one depicting appropriate camouflage for the waterfowl season and environment, and a second for the winter season. Likewise, hunters traveling to different geographic areas during the same season will desire different camouflage patterns based on the environment in which their activities will be conducted. A camouflage pattern suitable for July in Northern Michigan, for example, would be unsuited for use during the same season in a western state, such as in the Oregon high desert. From a practical standpoint, although lightweight, such collapsible enclosures do have a certain volume and mass, and it is inconvenient to transport several different enclosures at once.

What is needed then, is an adaptable enclosure which is readily convertible between one camouflage or background pattern and another, utilizing a common framework. Also desirable is the incorporation of two distinct camouflage or background marking patterns in a single covering which could be reversibly applied to a framework.

SUMMARY OF THE INVENTION

The invention, therefore, is a collapsible portable enclosure adapted to accept an array of different camouflage or background-marking coverings. Such coverings are readily interchangeable and may, in one embodiment, be reversible as well, providing to the user two separate camouflage or background-marking patterns in a single fabric covering. In one embodiment of the invention, one or more of a selection of fabric coverings may be applied over an existing enclosure, including both the frame and covering, to change the physical

appearance of the enclosure. In another embodiment, the fabric covering may be easily removed from the enclosure's framework, and a different covering, or the reverse side of the first covering, may be substituted for the first covering, or a first outer surface of the first covering.

DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view of the invention showing the enclosure bearing its basic covering, and a secondary covering overlaid and removably attached to the first covering.

Figure 2 shows one method of attaching the second covering to the enclosure.

Figure 3 shows a second embodiment of the invention, in the form of a framework, bearing a removable, reversible enclosure.

Figure 4 shows the attachment of the removable covering of the second embodiment, and its method for reversal.

Figure 5 shows the container for the enclosure and its associated additional coverings.

Figure 6 is a perspective view of the invention showing an enclosure bearing its basic covering, and a secondary, reversible covering overlaid and removably attached to the first covering.

Figure 7 is a perspective view of the enclosure showing the fully expanded position of the framework elements which support the enclosure.

~~Figures 8 through 11 show the folding sequence of the enclosure.~~

~~Figure 12 shows the folded enclosure in relation to its storage and carrying bag.~~

DETAILED DESCRIPTION OF THE INVENTION

One embodiment of the enclosure is designed with sufficient interior volume to accommodate one or more occupants. The overall dimensions of the enclosure are selected to insure the relative comfort of the occupants in the desired activity, which, by way of example in this application, is of a size suitable for hunting. The enclosure 10, as shown in Figure 1 and Figure 7, is supported by a plurality of frame members 12 surrounded by fabric. The frame members 12 are typically of a resilient or spring-like material, such as spring steel, which is strong and durable, yet lightweight. This embodiment the enclosure 10 is provided with a covering 15 which, in turn, is provided with closable ports, such as doors and windows, for the convenience of the occupant. While traditional fabrics such as Dacron or linen are typically used as the fabric covering, the invention may use other flexible materials, such as plastic sheeting, as the covering. Likewise, the enclosure is provided with a flexible floor (not shown), although the inclusion of a floor is not a requirement for all embodiments of the invention. Embodiments may be at least three-sided, yet may have four, five or more sides as may be desirable for the intended use of the invention. The frame members are restrained within sleeves 14 formed in the covering 15. The placement of the sleeves 14, and the dimensions of the side panels 16 which define the enclosure, further define the shape of the enclosure 10 and restrain the resilient frame 12 in a desired configuration when the enclosure 10 is fully erected.

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~~A typical example of the enclosure 10 is shown in Figure 1 and Figure 7, and includes a one or more continuous resilient frame members 12 which are contained within sleeves 14 sewn or otherwise formed in the perimeter of collapsible side panels 16 of the enclosure. In~~

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the fully erected state, the tension provided by the frames 12 against the sleeves 14 likewise asserts tension against the fabric side panels 16 of the enclosure, urging the side panels 16 of the enclosure 10 into the shape defined by the perimeter of the side panels 16 and the associated sleeve 14. In this embodiment, the fabric side panels 16 are formed into ovoid shapes by the ovoid shape of the side panel material, and the sleeves 14 attached to the perimeter of said side panels 16. By placement of a resilient frame member 12 within the sleeve 14, the ovoid shape of each side of the enclosure is obtained. Once each side panel 16 of the enclosure is expanded and subject to the tensioning provided by the resilient frame member 12, a multi-sided enclosure is thereby created which obtains its stability as the bottom apex 20 of each avoid frame contacts the ground. The side panels 16 of the enclosure are joined together by filler sections 24, and top section 26 which, in conjunction with side panels 16, create a complete enclosure. In this embodiment, each corner of the enclosure 10 is likewise provided with a stake loop 32 and stake 34 to allow temporary affixation of the enclosure 10 to the ground on which it is erected as shown in Figure 2. The enclosure 10 will typically have at least three, and preferably four side panels 16, although more than four side panels may also be incorporated into the device.

Also, as shown in Figure 1, a first surface 28 of the covering 15 of the enclosure is woven or printed with a first desired color, camouflage or background-matching pattern 30 suited to the environment in which the enclosure 10 will be used. In a first embodiment of the invention, this first covering 15, from which the sides of the enclosure 10 are formed, is permanently attached to the frame members 12 by capturing sleeves 14 which surround the side panels 16 of the enclosure. Additionally, in a second embodiment of the invention, the

enclosure 10 includes a second removable covering 40 bearing a second camouflage pattern 42. The covering 40 is manufactured in a size which is only slightly larger than the outside dimension of the erected enclosure 10. In this fashion, the covering 40 bearing a second camouflage pattern 42 may be drawn over the exterior of the enclosure 10, much as a glove is drawn over a hand, providing a new and secondary covering for the enclosure 10. In this embodiment, the covering 40 bears a color, camouflage or background-matching pattern 42 which is different from the color, camouflage or background or matching pattern of the underlying enclosure. In another embodiment of the invention as shown in Figure 6, the covering 40 is reversible, bearing a third camouflage pattern 44 on the side of the covering opposing the second camouflage pattern 42, thereby allowing the occupant to reverse the covering 40 and apply yet a third camouflage pattern 44 to the enclosure. To secure the covering 40 to the exterior of enclosure 10, covering 40 and covering 15 are provided with hook and loop type fasteners 41, or similar fasteners such as snaps, buttons or zippers, as shown in Figure 2.

In yet another embodiment of the invention as shown in Figures 3 and 4, the fabric forming the covering for the enclosure is provided with reclosable sleeves 46 which allow removal of the resilient frame members 12 from the enclosure 10. This allows utilization of the frame members 12 independent from the covering 15, so that the same resilient frame members 12 can be placed within the sleeves 46 of a variety of different coverings 15 bearing a variety of different camouflage patterns. Utilizing this method, the outdoorsman may carry the frame members 12 for the enclosure 10, and a plurality of fabric coverings 15, which may be installed upon the frame members at will, providing to the occupant of a wide variety of

different camouflage patterns for different environments and seasons. As with other embodiments, in this embodiment of the invention, each covering may be reversible, so that one covering provides two discrete camouflage patterns to the user.

The reclosable sleeves 46 above-described may be provided with any of a variety of conventional and well known closure means, such as zippers 48, Velcro™, snaps, buttons or the like. By the utilization of this type of closure, it is possible to selectively and repeatedly open and close the sleeves 46 surrounding the side panels 16 of the enclosure for insertion and removal of the resilient frame members 12. In the several embodiments of the invention, it is preferable to provide each of the side panels 16 with one or more ports 50, such as windows or doors, which are also provided with closures such as zippers, Velcro, snaps, buttons or the like. These ports permit ingress and egress to the occupant, as well as viewing of the area outside the enclosure, the firing of weapons, or the utilization of photographic equipment. The use of reversible closures, such as reversible zippers, on the ports 50 of the enclosure 10 insures the utility of such ports 50 regardless of which side of the covering is outermost.

In the collapsed state, the enclosure 10 fits conveniently within a container 60 for transport, as shown in Figure 5.

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~~The collapsing of the enclosure frame is accomplished as shown in Figure 7 through Figure 13. This process can be performed with the frame 12 alone, with the frame covered by fabric covering 15, or with the frame covered by a fabric covering 15 and one or more coverings 40. In the embodiment shown in Figure 7, the enclosure 10 comprises four side panels 16 surrounding frame members 12, and erected in such a fashion as to present a~~

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~~quadrilateral enclosure having a top section 26. Inasmuch as the material of the covering 15~~
is flexible, the enclosure 10 may be flattened, as shown in Figure 8 by urging side panel 16a
against side panel 16c and side panel 16b against side panel 16d. In this configuration, the
frame member 12a surrounding side panel 16a is brought into contact with frame member 12c
surrounding side panel 16c and frame element 12b surrounding side panel 16b is brought into
contact with frame element 12d surrounding side panel 16b. Thereafter, as shown in Figure
9, side panels 16a, frame member 12a, side panel 16c and frame member 12c are folded in the
direction of the arrow, thereby stacking side panels 16a through 16d against one another,
thereby bringing into superimposed contact frame members 12a through 12d. Next, as shown
in Figure 10, simply twisting the stack of superimposed frame members into a U-shaped
configuration initiates the folding process. A second twist as shown by the arrow in Figure
11 results in the formation of three overlapping coils of resilient material each having a
substantially smaller diameter than the diameter of the frame members above-described. The
three coils 70, 72, and 73 are shown in Figure 12. When the three coils 70, 72, and 73 are
superimposed, they form a compact package 74 which may be easily transported. In the
preferred embodiment, the invention is provided with a container 60 adapted to enclose and
restrain the collapsed enclosure or framework. The container 60 may be provided with one or
more pockets (not shown) in which to store one or more coverings 40. Further, the container
may be provided with shoulder straps 62 and a closure 64 to facilitate carrying. In this
fashion, the user may conveniently carry the framework, the principal enclosure, and/or the
~~framework, principal fabric covering and a plurality of additional coverings.~~

Having thus described my invention, numerous modifications and alterations will be
obvious to those skilled in the art, without deviating from the invention, which I claim as